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Mandated Benefit Review of HB 52:

An Act to Provide Access to Hearing Aids for Children



DIVISION OF
Health Care
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Introduction

On August 30, 2011, the Joint Committee on Health Care Financing referred *House Bill 52: An Act to provide access to hearing aids for children* (H52) to the Division of Health Care Finance and Policy (the Division) for review. H52, before the 2011-2012 Session of the Massachusetts Legislature, mandates insurance coverage for hearing aid devices and related services for children.

The Division, pursuant to the provisions of M.G.L. c. 3 § 38C which requires it to evaluate the impact of mandated benefit bills referred by legislative committee for review and to report to the referring committee, commissioned a study by Compass Health Analytics (Compass)¹ to provide an actuarial estimate of the effect that enactment of the bill would have on the cost of health care insurance. The full report was prepared by Compass' James Highland, Heather Clemens, Amy Raslevich, and Lars Loren, and is available as an addendum to this Mandated Benefit Review.

This review is thus broken into three sections: (1) an overview of the mandate, (2) a summary of Compass' actuarial analysis, and finally (3) a literature review examining the medical efficacy of the bill's mandate.

¹ Compass Health Analytics, Inc. "Actuarial Assessment of House Bill 52: An Act to Provide Access to Hearing Aids for Children." 2012.

Overview of H52

On December 20, 2011, Division staff and representatives from Compass met with several of the bill's authors to discuss its legislative intent prior to conducting the actuarial analysis. Stemming from this conversation and subsequent analysis of the text is the understanding that H52 shall apply to any minor child age twenty-one or younger covered under the Group Insurance Commission (GIC), accident and sickness insurance policies, or HMOs, as well as to any minor child age twenty-one or younger covered under contracts with non-profit hospital service corporations or certificates under medical service agreements if they are residents of or have principal employment in Massachusetts.² The bill assures that individuals covered under the aforementioned policies shall be eligible for assistance from their insurance company in attaining hearing aids. An excerpt from the full report explains further.

HB52 mandates coverage for:

- One hearing aid per hearing impaired ear every 36 months upon a written statement of medical necessity by the minor's treating physician. Hearing aids are described as 'a wearable aid or device... designed for or offered for the purpose of aiding or compensating for hearing loss.' This definition explicitly excludes surgical implants, including abutments or cochlear implants; however, devices inserted directly into the ear or worn with an ear mold, as well as air conduction receivers and bone oscillator attachments (equipment only) are included. Coverage is limited to \$2000 per device.
- All related services prescribed by a licensed audiologist or hearing instrument specialist, including an initial evaluation, fitting and adjustments, and related supplies including ear molds and batteries. These services and supplies are not subject to a coverage cap.
- The insured is permitted to choose a higher priced hearing aid device and "may pay the difference in cost above the two thousand dollar (\$2000) limit as provided... without any financial or contractual penalty to the insured or to the provider of the hearing aid."

Compass finds that the bill further indicates, "owing to federally prescribed preventive benefits paid with zero cost sharing...no cost sharing would apply to this benefit."³ It is upon this understanding of the bill's legislative intent that the actuarial analysis is built.

² Compass: p.2.

³ Compass: p.3.

Financial Impact

Data and Methodology

The Division's actuaries note in their report that "The availability of insurance coverage will shift [hearing aid] expenses to the insurer, and will presumably cause some of those who did not previously purchase hearing aids due to the expense to purchase the devices."⁴ They also note that, "It is important to consider the additional effects the presence of coverage would likely have on both the decision to adopt use of a hearing aid and on the average features and cost of units purchased."⁵ To calculate the marginal impact of H52 on insurance premiums therefore, Compass formulated and solved the following equation:

$$\begin{aligned} \text{Cost} = & \text{Covered population} \\ & \times \text{Hearing loss prevalence} \\ & \times \text{Target Population Percentage}^* \\ & \times \text{Hearing aid adoption rate among hard of hearing} \\ & \times \text{Binaural rate}^\dagger \\ & \times \text{Cyclical replacement factor}^\ddagger \text{ (e.g., replacement time > 3 years)} \\ & \times \text{Unit cost of hearing aid (and associated costs)}^6 \end{aligned}$$

Health Care Quality and Cost Council data, GIC data, questionnaire submissions by the five largest private insurers in the Commonwealth, and published studies were available to Compass in their analysis. A majority of the full report is dedicated to detailing the assumptions that were made in solving for each of the components in the above formula, and it also thoroughly explains the methodology by which each of those assumptions were made.

⁴ Compass: p.14

⁵ Compass: p.15

* Individuals under twenty-one years of age

† The "binaural rate" is equal to 1 plus the percentage of individuals who need a hearing aid in both ears as opposed to needing a hearing aid in just one ear.

‡ The "cyclical replacement factor" refers to the rate at which the hearing aid may need replacement.

⁶ Compass: p.i

Findings

As indicated in the table below, the five-year total estimated impact on insurance premiums ranges from 0.004 to 0.015 percent of annual premium (0.008 percent of annual premium in the mid-level scenario), with an average marginal cost ranging from 0.02 to 0.07 dollars per-member per-month (or 0.04 dollars per-member per-month in the mid-level scenario).

“Note that the assumptions about [the frequency with which individuals may choose to replace their device] and the 36 month requirement [stipulated by the bill] make the annual costs for this mandate ‘lumpy’ or variable from year to year.”⁷

Compass’ 5-Year Cost Projection Scenarios⁸

	2013	2014	2015	2016	2017	Average	5 Year Total
Members	1,986,462	1,965,622	1,944,347	1,923,077	1,901,099		
Medical Expense Low (\$000’s)	\$483	\$375	\$368	\$452	\$355	\$407	\$2,033
Medical Expense Mid (\$000’s)	\$1,156	\$664	\$664	\$1,139	\$665	\$858	\$4,288
Medical Expense High (\$000’s)	\$2,407	\$1,029	\$1,037	\$2,409	\$1,059	\$1,588	\$7,942
Premium Low (\$000’s)	\$531	\$412	\$404	\$498	\$390	\$447	\$2,236
Premium Mid (\$000’s)	\$1,272	\$731	\$730	\$1,253	\$732	\$943	\$4,717
Premium High (\$000’s)	\$2,648	\$1,132	\$1,141	\$2,650	\$1,165	\$1,747	\$8,736
PMPM Low	\$0.02	\$0.02	\$0.02	\$0.02	\$0.02	\$0.02	\$0.02
PMPM Mid	\$0.05	\$0.03	\$0.03	\$0.05	\$0.03	\$0.04	\$0.04
PMPM High	\$0.11	\$0.05	\$0.05	\$0.11	\$0.05	\$0.07	\$0.07
Estimated Monthly Premium	\$464.21	\$487.42	\$511.79	\$537.38	\$654.25	\$512.46	\$512.46
Premium % Rise Low	0.005%	0.004%	0.003%	0.004%	0.003%	0.004%	0.004%
Premium % Rise Mid	0.011%	0.006%	0.006%	0.010%	0.006%	0.008%	0.008%
Premium % Rise High	0.024%	0.010%	0.010%	0.021%	0.009%	0.009%	0.015%

This table reflects Compass’ actuarial analysis with regards to the private insurance market.

In a parallel exercise specifically using the GIC data, Compass determined the effects of the legislation on GIC premiums to be minimal and indirect:

“With a hearing aid benefit already in place, we do not anticipate an increase in the prevalence rate of hearing aid users due to the introduction of HB52 for the GIC population ... The calculations result in overall five-year average costs ranging from \$77K to \$219K. However, if we assume that the GIC’s costs would be equal to what they were in 2011 without HB52, \$62K for children ages 0 to 24, then the estimated net impact would be in the range of \$15K to \$157K.”⁹

These numbers reflect the total impact on GIC premiums, and not a per-member per-month figure, as was generated by the private insurance market figures.

⁷ Compass: p.27

⁸ Compass: p.iii

⁹ Compass: p.30

Medical Efficacy: A Literature Review

Children of varied ages benefit from hearing aids, which are an established effective technology to improve hearing for the hearing impaired. The basic question about medical efficacy of hearing aids is well documented in the literature, and has been previously reviewed by the Division. Hearing aids help people to hear more, thus providing benefits to those who wear them, enhancing the ability to enjoy recorded, televised and radio media; safety; the ability to develop neurological capacity; and the ability to engage in school, work and personal communication.

Hearing loss varies, from mild deficits at one end of the spectrum and profound loss at the other extreme. Parents of those with mild or moderate loss of hearing may feel a hearing aid may not be worth the cost and trouble, while parents or guardians of those with profound loss may find their child would be helped little by even the best current technologies. As the convenience and technological finesse of hearing aids and implants continue to improve, additional people with hearing loss will also be able to benefit.

We see, however, several issues about the efficacy of hearing aids that may influence consideration of a mandate for expanded coverage of hearing aids, including their positive impact on children's language development, recently improved technologies, and their reduced benefit due to non-use by their owners. We address these issues below.

Effect of Hearing Aids on Children's Language Development

The effects of hearing aid use on children have recently been carefully analyzed by researchers for the state of California as part of that state's proposed mandate of hearing aids for children.¹¹ Their analysis focused on language and social development outcomes from screening and treatment at different ages and with different hearing aid technologies. Because ethical concerns and parental preferences generally prevent withholding of interventions for children with hearing deficits, the evidence for the benefits of hearing aids come from observational studies rather than randomized, controlled studies. Thus the evidence for the benefits of hearing aids in children does not reach the high level of evidence that some other technologies or treatments can with randomized controlled studies.

The California analysis found that early treatment of hearing loss allows children to speak sooner and more clearly, with greater vocabulary and verbal reasoning skills. Although the advantages cannot be attributed solely to the hearing aids, because most children were also participating in early intervention programs, the report concluded that the evidence "indicates that hearing aids are helpful to many children who have hearing impairments."¹²

¹⁰ "Review and Evaluation of Proposed Legislation Entitled: An Act to Provide Coverage for Hearing Aids House Bill 3598." Massachusetts Division of Health Care Finance and Policy, May 2010. Accessed at <http://www.mass.gov/eohhs/docs/dhcfp/r/pubs/10/mb-hearing-aids.pdf>, March 23, 2012.

¹¹ California Health Benefits Review Program (CHBRP). (2007). Analysis of Assembly Bill 368: Mandate to Offer Coverage for Hearing Aids for Children. Report to California State Legislature. Oakland, CA: CHBRP; 2007. CHBRP-07 01, pp. 16-33.

Technological Advances in External Hearing Aids

Because innovation continues rapidly in hearing aid design, we can expect continued research into the relative benefits of different kinds of hearing aids. The transition from analog to digital hearing aids has largely been completed in the United States; as of 2009, 98 percent of all hearing aids in use were digital hearing aids.¹³ The UK's National Institute for Clinical Excellence (NICE), which provides independent advice to practitioners and users of the National Health Service, officially recognized in 2003 the benefits of digital hearing aids. NICE reported that investigations in the UK have established that "digital hearing aids are a proven technology."¹⁴

Similar analyses have been conducted regarding the advancement of directional-microphone hearing aids and bone-anchored hearing aid (BAHA). Directional-microphone hearing aids include a microphone oriented toward sound sources such as a person speaking in front of the user. The conclusion on the efficacy of directional-microphone hearing aids was that they can be shown to help people understand speech even with background noise if the speaker and listener face each other in an environment with limited reverberation. , For individuals who cannot use or get a poor result from traditional hearing aids that channel sound through the ear canal, the BAHA is a useful alternative. A screw is implanted through the skin behind the ear to make contact with the skull, and an external device picks up sound vibrations and transmits them through the screw to the skull where it travels to the inner ear, bypassing the auditory canal and middle ear. Research suggests that the bone-anchored hearing aid is an effective approach for both adults and children.^{17,18}

¹² Ibid.

¹³ American Academy of Audiology consumer website <http://www.howsyourhearing.org/hearingaids.html> accessed April 17, 2012.

¹⁴ May 3, 2003 press release. Andrew Dillon, Chief of NICE. Accessed on March 8, 2010 at http://www.nice.org.uk/niceMedia/pdf/Pressrelease013_HearingAidsWithdrawal.pdf

¹⁵ <http://www.aetmis.gouv.qc.ca/site/download.php?f=b2d33ccc6bfac5fa2478c606c6256b87>

¹⁶ See the California report on the mandate to offer coverage for hearing aids for children (see prior section for description and citation), pages 23-25.

¹⁷ A. Snik, J. Leijendeckers, M. Hol , E. Mylanus and C. Cremers, "The bone-anchored hearing aid for children: recent developments." *International Journal of Audiology* September, 2008, pp. 554-9.

¹⁸ C.J. Linstrom , C.A. Silverman and G.P. Yu, "Efficacy of the bone-anchored hearing aid for single-sided deafness," *Laryngoscope*, April 2009, pp. 713-20.

Benefits of Hearing Aids Reduced by Non-Use*

While hearing aids can benefit those with hearing loss, not all those who obtain hearing aids continue to use them regularly. Discouragement with hearing aids can result from discomfort or limited functional improvement for a variety of reasons. When an individual discontinues use, the hearing aid is no longer effective in practice. The efficacy of the hearing aid, like that of prescriptions and other durable medical equipment, is limited by the individual's perception of benefit and willingness to continue its use. Because the one-time cost of the hearing aid is significant, substantial money may be spent without benefit if the user discontinues use. A 2005 study for the New Hampshire Department of Insurance included survey data suggesting that one-fifth of owners were dissatisfied with their hearing aids and that one-sixth of hearing aids were not being used.¹⁹ Rates of satisfaction have probably risen with the spread of digital and programmable hearing aids.

Conclusion

The Division does not take a position in support of, or in opposition to, any legislation referred for review, but we do find the financial impact of House Bill 52 to be minimal. Even under conservative market assumptions, enactment of the bill will cause no more than a 0.015 percent increase in insurance premiums. Moreover, with the bill's emphasis on children's access to hearing aids rather than broad access across the board, the Division finds the efficacy of hearing aids to be particularly significant in H52's targeted population.

¹⁰ Although not often a problem among children, studies suggest that non-use may limit efficacy in broader populations, therefore meriting reflection in this analysis.

¹⁹ Earl L. Hoffman, Reden and Anders, Ltd., "Study of the Impact of House Bill 159, Coverage of Hearing Aids and Instruments," for the New Hampshire Insurance Department. November 8, 2005, pp. 3 and 7, accessed at http://www.nh.gov/insurance/legal/documents/impact_sb159.pdf, March 9,



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